REPORT ON A HELICOPTER-BORNE MAGNETIC AND ELECTROMAGNETIC SURVEY

"featuring the AeroQuest AeroTEM© System"

Post Creek Block
Sudbury Area, Northern Ontario

for

Namex Explorations Inc.
4333 St. Catherine St. West
Montreal, P.Q. H3Z 1P9
Tel: (514) 935-2445

by

AEROQUEST LIMITED

4-845 Main St.
Milton, Ont., L9T 3Z3
Tel: (905) 693-9129 Fax: (905) 693-9128

June, 2002

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MAPS

The results of the survey are presented in a series of black line and colour maps at a scale of 1:10,000. The geophysical maps have been plotted on a registered topographic base.

Map products are as follows:

- Plate 1. GPS flight path with EM anomalies.
- Plate 2. Total Magnetic Intensity with EM anomalies.
- Plate 3. Vertical Magnetic Gradient with EM anomalies
- Plate 4. Z1 and Z3 EM offset profiles with EM anomalies.

All the maps show the flight path, and skeletal topography, and EM anomalies represented by symbols denoting the number of channels of response. The Z3 channel peak amplitude or first negative channel, if the response was negative, are posted alongside the anomaly symbol. The contour maps were produced in both black-line only and colour map versions. The colour plates were laminated with clear plastic on both sides.

DIGITAL DATA on CD-ROM

A CD-ROM was prepared to accompany the report. It contains a digital flat file of the profile data in ASCII - Geosoft format as well as the geophysical maps in Geosoft format. The magnetic grids are also included as well as a text file listing of the EM anomalies. Stacked profiles showing the EM, magnetic, and altimeter traces for each survey line are also included on the CD-ROM. A *readme.txt* file may be found on the CD-ROM which describes the file contents in more detail.

For the reader's convenience, a copy of Geosoft's Oasis Montaj Ver 5.0 Free Interface is included on the CD-ROM. To install the interface, unzip the two files and follow the instructions in the PDF format (Adobe Reader) guide.

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1. INTRODUCTION

This report describes a helicopter-borne geophysical survey carried out on the Post Creek block in the Sudbury Area, Ontario.

Principal geophysical sensors included AeroQuest's exclusive AeroTEM© six channel time domain helicopter electromagnetic system and a high sensitivity cesium vapour magnetometer. Ancillary equipment included a GPS navigation system with GPS base station, radar altimeter, video recorder, and a base station magnetometer.

The total line kilometres, including tielines, flown was 126.0 km. The survey flying took place on March 19, 2001.

This report describes the survey, the data processing and presentation. EM anomalies were picked and graded according to the number of channels of response. A late time response (in the later channels, channel 6 being the latest) indicates a better conductor. A list of EM picked EM anomalies may be found in the appendix.

2. SURVEY AREA

The regional and local settings of the survey area are shown in figures 1-3.

The Post Creek survey block lies in Parkin Township, Sudbury Mining Division, roughly 10 km northeast of Capreol, Ont. The block is centred at latitude 46°48'N and longitude 80°52'W. The NTS sheets covering the survey area is 41I/15 and the Mining Land Tenure map is G-2915.

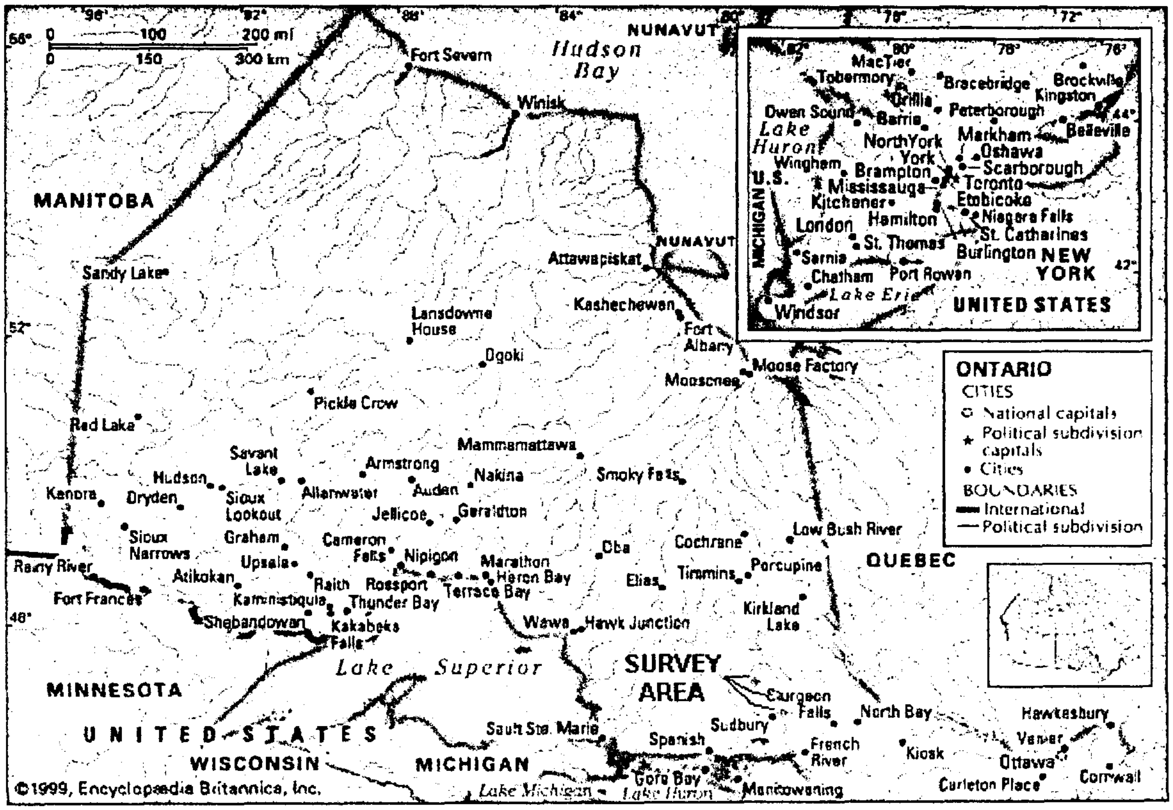


Fig 1. The Survey Area Location

During the survey, the crew was based at the Valley Inn in Azilda. The helicopter was parked at a farm near Azilda. The Mag/GPS base station was installed at a magnetically quiet area at the helicopter base.

The geological setting of the survey block is illustrated in Fig. 2. A sketch of the flight path of the block may be found in Fig 3.

Survey specification details may be found in the next section of the report.

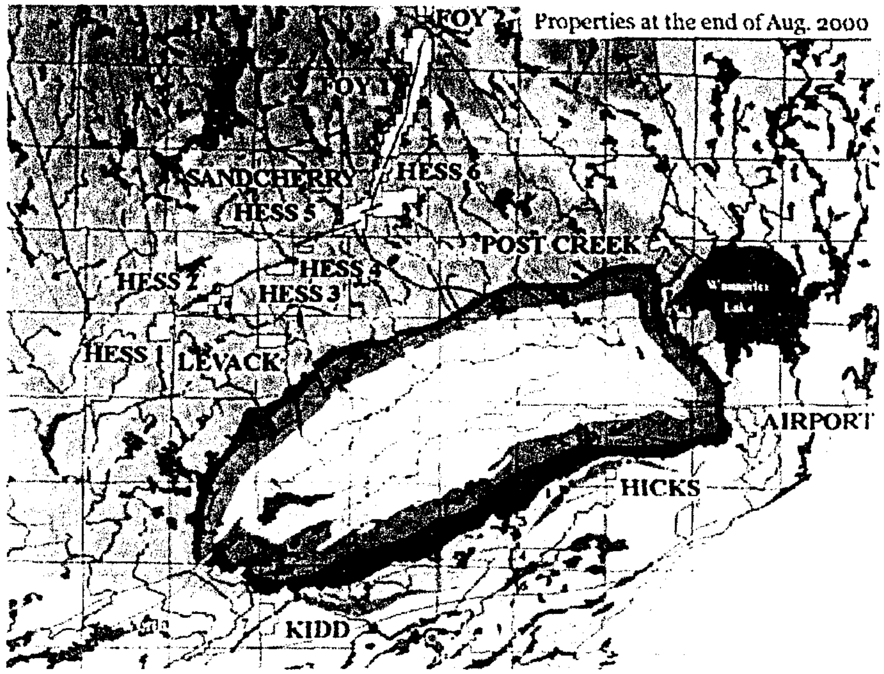


Fig 2. Geological Setting

3. SURVEY SPECIFICATIONS AND PROCEDURES

The survey specifications are summarised in the following table:

Property Name	Line Spacing (m)	Total Survey (km)	Survey Line (km)	Tielines (km)	Flight Direction	Dates Flown (2001)
Post Creek	40	126.0	126.0	0.0	N45E & N135E	Mar 19
Total		126.0	126.0	0.0		

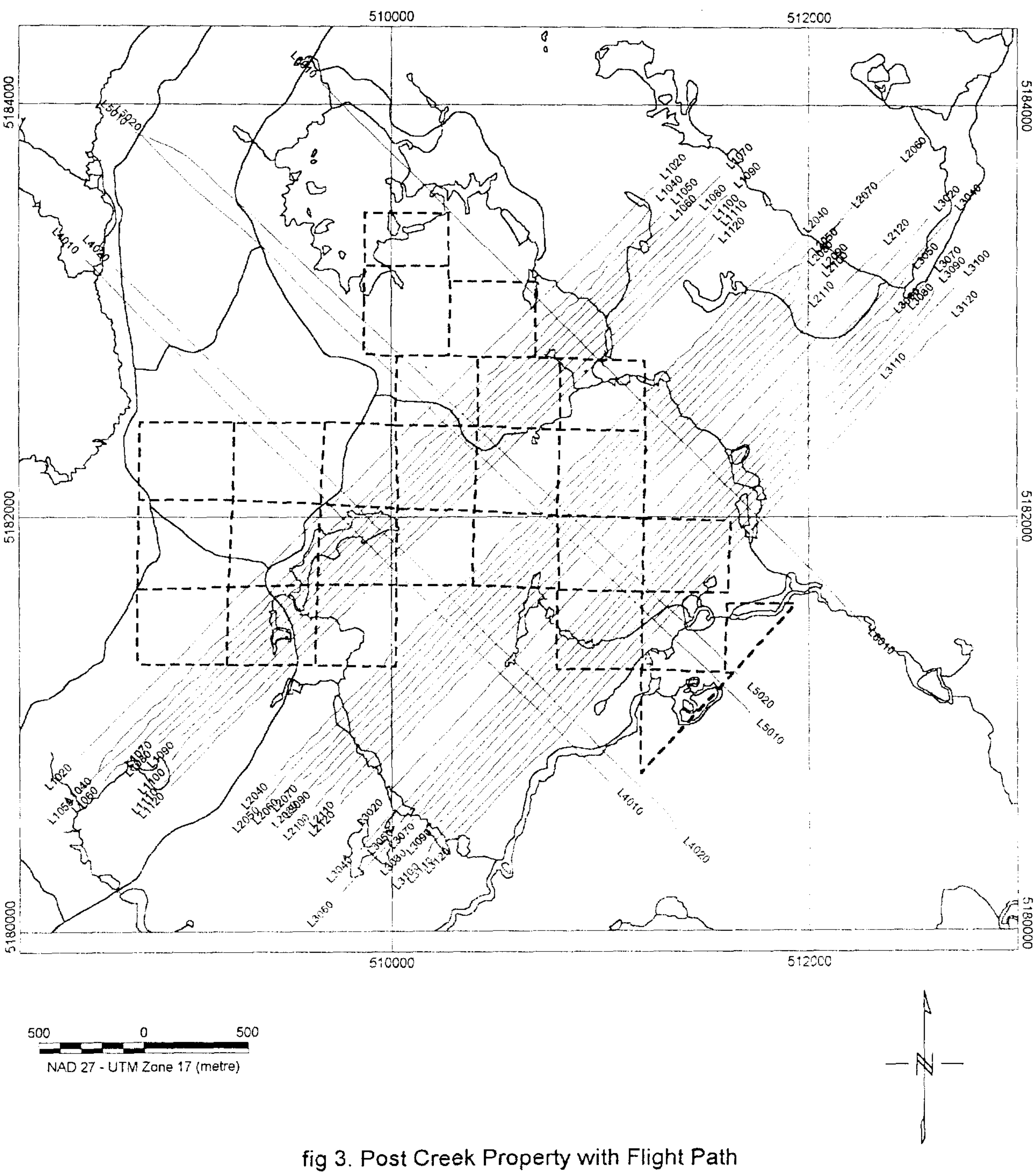


fig 3. Post Creek Property with Flight Path

Nominal EM bird terrain clearance was 25 metres (75 ft). The magnetometer sensor was mounted in a smaller bird connected to the tow rope 21 metres above the EM bird and 17 metres below the helicopter. Nominal survey speed was 75 km/hr. Scan rates for data acquisition was 0.1 second for the magnetometer, electromagnetics and altimeter and 1.0 second for the GPS determined position. This translates to a geophysical reading about every 2 metres along flight track.

Navigation was assisted by a GPS receiver and the RMS data acquisition system which reports GPS co-ordinates as WGS-84 latitude/longitude and directs the pilot over a pre-programmed survey grid. The x-y-z position of the aircraft, as reported by the GPS, is recorded at one second intervals. The GPS positions were differentially corrected in real-time using the RACAL satellite based system.

Unlike frequency domain electromagnetic systems, the AeroTEM© system has negligible drift due to thermal expansion and therefore high altitude zero calibration lines are not required. The inherent static offset is removed by identifying areas of no response and employing local levelling lines.

The operator was responsible for ensuring the instrument was properly warmed up prior to departure and that the instruments operated properly throughout the flight. He also maintained a detailed flight log during the survey noting the times of the flight as well as any unusual geophysical or topographic features.

On return of the aircrew to the base camp, the RMS acquisition system survey data on ZipDisk was downloaded to the data processing work station. The MDAS recorded data on JazzDisk was also downloaded to the processing station for back-up purposes. In-field processing included flight preparation, transfer of the RMS acquired data to Geosoft GDB database format and production of preliminary EM, magnetic contour, and flight path maps. Survey lines which showed excessive deviation after differential correction were reflown.

4. AIRCRAFT AND EQUIPMENT

4.1 Aircraft

A Eurocopter (Aerospatiale) AS350BA "A-Star" helicopter - registration C-FHAK - owned and operated by Abitibi Helicopters Ltd., LaSarre, P.Q., was used for the survey. Installation of the geophysical and ancillary equipment was carried out by AeroQuest Limited at the Abitibi Helicopter base in LaSarre, P.Q. The survey aircraft was flown at a nominal terrain clearance of 200 ft.

4.2 Electromagnetic System

The electromagnetic system employed was an AeroQuest AeroTEM© Time Domain towed bird system. It is currently the only commercially available helicopter TDEM system using a coincident Tx-Rx loop combination. Six channels of the off-time EM decay are measured in two components , i.e. the x and z directions. Although both x and z components of the decay field were recorded, only the z component data is presented in the final maps (although x1 appears in the stacked profiles). The transmitted waveform is triangular with a base frequency of 150 Hz, yielding 300 decays per second. The Transmitter Dipole moment is 48,000 NIA. The AeroTEM© bird was towed 38 metres (125 ft) below the helicopter. More technical details of the system may be found in the technical paper in the Appendix.

4.3 Magnetometer

The Aeroquest airborne survey system employed the Geometrics G-822A cesium vapour magnetometer sensor installed in a two metre towed bird airfoil attached to the main tow line, 17 metres below the helicopter. The sensitivity of the magnetometer is 0.001 nanoTesla at a 0.1 second sampling rate. The nominal ground clearance of the magnetometer bird was 51 metres (167 ft.).

4.4 Ancillary Systems

Magnetometer and GPS Base Station

An integrated GPS and magnetometer base station was set up at the base of operations to monitor the static position GPS errors to permit differential post-processing and to record the diurnal variations of the earth's magnetic field. Each sensor, GPS and magnetic, receiver/signal processor was attached to a dedicated laptop computer for purposes of instrument control and/or data display and recording. The laptops were, in turn, linked together to provide a common recording time reference using the GPS clock.

The magnetometer was a GEM GSM-19 proton precession magnetometer configured to measure at 1 second intervals. The sensor was placed on a tripod away from potential noise sources. The clock of the base station was synchronised with GPS time in order to allow correlation with the airborne data. Digital recording resolution was 0.1 nT. A continuously updated profile plot of the base station values was available for viewing on the base station display.

The GPS base station employed a Magnavox 4200-6 channel GPS receiver with external antenna. The static location of the antenna was recorded at one second intervals to allow differential corrections to be made to the helicopter GPS recorded flight path. The GPS base station was only used for back-up as the RACAL real time differential receiver system was installed in the helicopter.

Radar Altimeter

A Terra TRA 3500/TRI-30 radar altimeter was used to record terrain clearance. The antenna was mounted on the outside of the helicopter beneath the cockpit. The recorded data represented height of the antenna, i.e. helicopter, above the ground. The recorded value of the helicopter clearance was in metres but it must be noted that it was reading (and recording) 3 metres too low. The bird height data in the digital database and in the plots has been corrected for this error. The Terra altimeter has an altitude accuracy of +/- 1.5 metres.

Video Tracking and Recording System

A high resolution colour video camera was used to record the helicopter ground flight path along the survey lines. The video is digitally annotated with GPS position and time and can be used to verify ground positioning information and cultural causes of anomalous geophysical data.

GPS Navigation System

The navigation system consisted of a Picodas PNAV navigation system comprising a PC based acquisition system, navigation software, a deviation indicator in front of the aircraft pilot to direct the flight, a full screen display with controls in front of the operator, an Ashtech GPS receiver card mounted in the PNAV console, an Ashtech GPS antenna mounted on the magnetometer bird, and the RACAL MkIII DGPS data receiver.

Survey co-ordinates are set-up prior to survey and the information is fed into the airborne navigation system. The co-ordinate system employed in the survey design is NAD27 UTM. The real-time differentially corrected GPS positional data is recorded in WGS-84 latitude and longitude at one second intervals directly in the geophysical data file. The raw GPS data is also stored in a separate file by the acquisition system.

Digital Acquisition System

The RMS Instruments DGR33A data acquisition system was used to collect and record the geophysical and positional data. The data was recorded on 100Mb capacity Zip disks. See the specification sheet in the appendices for more technical details on the acquisition system.

5. PERSONNEL

The following AeroQuest personnel were involved in the project

Field-

Party Chief : Wally Boyko
Data Processor : Neil Fiset
Operator: Bert Simon
Field Technician: John Laviolette

Office-

Data Processing and Report: Neil Fiset

The survey pilot, Joel Breton, was employed directly by the helicopter operator - Abitibi Helicopters Ltd.

6. DELIVERABLES

The survey is described in a report which is provided in two copies. The report includes a set of four flight path/geophysical maps. All the maps show the flight path trace with time reference fiducials marked at an appropriate interval.

The underlying topography was obtained from the digital topographic database series (OBM) published by the Ontario Ministry of Natural Resouces and commercially available through DigiMap Data Services, Toronto.

The basic map coordinate/projection system used is NAD 27 (Canada Mean) Universal Transverse Mercator Zone 17. For reference, the NAD27 latitude and longitude are also noted on the maps.

The following table describes the map products accompanying the report:

- Plate 1. GPS flight path with EM anomalies.
- Plate 2. Total Magnetic Intensity with EM anomalies.
- Plate 3. Vertical Magnetic Gradient with EM anomalies.
- Plate 4. AeroTEM Z1 and Z3 EM offset profiles with EM anomalies.

Stacked profile sections for each survey line have been prepared as Geosoft **.map* files. Parameters shown on the stacked profiles include the six channels of Z component EM data, one X component, 60 HZ powerline detector, EM bird height and magnetic intensity. The time reference fiducials and UTM co-ordinates are indicated along the x-axis. They can be used to help locate the profiles on the plan maps. Also plotted beneath the EM traces are the picked anomaly symbols. The same symbols are found on the plan maps and described in the plan map legend.

The digital profile data is archived on CD-ROM in a flat file Geosoft XYZ format. In addition, the geophysical maps in Geosoft format as well as the magnetic and AeroTEM Z2 grids are included. A description of the xyz file format may be found in the appendices of this report.

7. DATA PROCESSING AND PRESENTATION

7.1 Base Map

The geophysical maps accompanying this report are based on positioning in the Canada Mean local datum of NAD27. The survey geodetic GPS positions have been map projected using the Universal Transverse Mercator projection in Zone 17.

A summary of the map datum and projection specifications are as follows:
Ellipse: Clark 1866
Ellipse major axis: 6378206.4m eccentricity: 0.082271854
Datum: North American 1927 - Canada Mean
Datum Shifts (x,y,z) : 10, -158, -187 metres
Map Projection: Universal Transverse Mercator Zone 17 (Central Meridian 81°W)
Central Scale Factor: 0.9996
False Easting, Northing: 500,000m, 0m

7.2 Flight Path Map

The position of the survey helicopter was directed by use of GPS satellites with the RACAL real-time differential correction. The recorded flight path was converted from WGS-84 datum latitude-longitude into the local UTM co-ordinate system using the NAD27 Canada Mean datum. The flight path is drawn using linear interpolation between x,y positions from the navigation system. Positions are updated every second and expressed as UTM eastings (x) and UTM northings (y).

The time reference fiducials are drawn on the map at appropriate intervals and are used to reference the data file to the plan map.

7.3 Electromagnetic Data

A two stage digital filtering process was used to reject major sferic events and to reduce system noise.

Local sferic activity can produce sharp, large amplitude events that cannot be removed by conventional filtering procedures. Smoothing or stacking will reduce their amplitude but leave a broader residual response that can be confused with geological phenomena. To avoid this possibility, a computer algorithm searches out and rejects the major sferic events. The filter used was a 0.8 sec non-linear filter.

The signal to noise ratio was further improved by the application of a low pass linear digital filter. This filter has zero phase shift which prevents any lag or peak displacement from occurring, and it suppresses only variations with a wavelength less than about 2 seconds or 40 metres. This filter is referred to as a 2.0 sec linear filter.

EM anomalies have been manually picked from the analogue profiles. Each anomaly has been given a letter label and is graded according to the channels in which the anomaly is discernible and the direction of the excursion, either positive or negative. A listing of these anomalies may be found in the appendix.

The EM channels have been levelled to remove the residual zero offset.

7.4 Magnetic Data

The aeromagnetic data were corrected for diurnal variations by adjustment using the magnetic base station and and, where necessary, the intersections of the tie lines. No corrections for the regional reference field (IGRF) were applied. The corrected profile data were interpolated on to a grid using a random grid technique. The cell size was 10 metres for the 1:10,000 grid. Any levelling errors still apparent in the magnetic grid were removed by micro-levelling which involves the use of a frequency domain directional filter. The final levelled grid provided the basis for threading the presented contours. The minimum contour interval was 10 nT.

Respectfully submitted,

Neil Fiset, B.Sc.,
AeroQuest Limited

June 18, 2002

APPENDIX 1 Description of Contents - xyz files

Column	Description
x	Zone 17 UTM Easting in metres (NAD27)
y	Zone 17 UTM Northing in metres (NAD27)
lat	WGS84 Latitude in decimal degrees
long	WGS84 Longitude in decimal degrees
fid	Time reference fiducial in seconds
fltno	Flight number
rtctime	Local time as HH:MM:SS.SS
utctime	UTC time as HHMMSS.SS
date	Date in YY/MM/DD
z1flev to z6flev	Processed EM-Z component of channels 1 to 6 in ppb
x1flev	Processed EM-X component of channel 1 in ppb (Direction corrected)
rawmag	Raw total magnetic intensity in nanoTesla
basemagf	Smoothed magnetic base station in nanoTesla
magfinal	Final total magnetic intensity in nanoTesla
vertgradfinal	Vertical Magnetic Gradient in nT/m
galt	GPS elevation in metres
bheight	terrain clearance of EM bird in feet
powerlinef	Powerline (60Hz monitor)

APPENDIX 2

Anomaly Listing

Post Creek

UTM-E	UTM-N	label	chan	neg	Z3(ppb)
Line 1070					
510519.6	5182583.0	A	3	0	6
Line 2040					
509621.7	5180946.5	A	4	0	7
Line 2050					
509659.5	5180926.0	A	4	0	10
510792.6	5182096.5	B	1	0	0
Line 2060					
509698.6	5180898.5	A	3	0	0
Line 2070					
509734.8	5180895.0	A	1	0	0
Line 2090					
511713.0	5182834.0	A	5	0	9
Line 2100					
511737.2	5182799.5	A	6	0	56
Line 2110					
511765.7	5182754.5	A	6	0	85
Line 2120					
511782.8	5182718.0	A	6	0	340
Line 3020					
512226.8	5183073.0	B	6	0	12
512129.8	5182966.5	A	4	0	9
Line 3040					
512304.2	5183026.0	A	0	0	0
Line 3050					
512371.9	5183033.5	A	2	0	0
Line 3060					
509870.4	5180305.5	A	6	0	87
511864.1	5182436.5	B	2	0	0
Line 3070					
512465.0	5183035.5	C	6	0	25
512383.8	5182952.5	B	4	0	8
511889.3	5182418.5	A	5	0	6
Line 3080					
511903.0	5182378.5	A	6	0	29
Line 3090					
512524.4	5182970.5	C	6	0	72
511976.3	5182398.0	B	6	0	27
511927.7	5182344.0	A	6	0	43
Line 3100					
511920.7	5182274.5	A	3	0	9
511989.4	5182347.0	B	5	0	34
512522.5	5182921.0	C	6	0	23
Line 3110					
512007.8	5182300.0	B	5	0	15
511915.2	5182195.5	A	3	0	5
Line 3120					
511927.4	5182156.5	A	6	0	35
512028.4	5182270.5	B	6	0	27
Line 4010					
509001.9	5182766.0	A	1	0	0
Line 4020					
509071.8	5182814.5	A	4	0	9
Line 5010					
509381.6	5183306.5	A	5	0	14
Line 5020					
509339.7	5183457.5	A	3	0	8
Line 6010					
511943.4	5181811.5	A	6	0	58

A "0" channel indicates an indeterminate positive anomaly, i.e. within noise level
A "10" channel indicates probable power line.
A "20" channel indicates probable High Voltage line.
A "30" channel indicates other cultural source.
A "39" channel indicates an indeterminate negative anomaly, i.e. within noise levels

Appendix 3: Technical Paper entitled " AeroTEM: System Characteristics and Field Results" by W. Boyko, N. Patterson, and K. Kwan, 2000.

AeroTEM characteristics and field results

W. Boyko, AeroQuest Limited, Mississauga, Ontario, Canada
N.R. Paterson and K. Kwan, Paterson, Grant, and Watson Limited, Toronto, Ontario, Canada

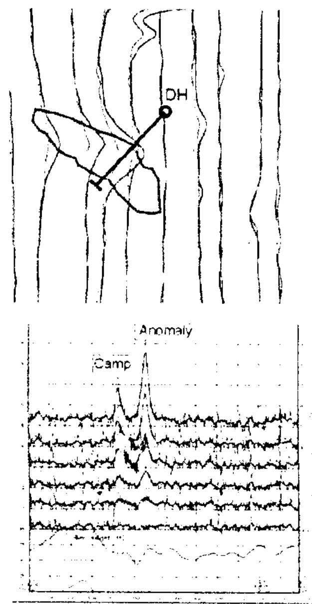
After half a century of rapid AEM (airborne EM) development and application, the 1980s were a "decade of uncertainty" (Fountain 1998) in which improvements focused mainly on increased bandwidth, multiple coil systems, and other advantages attendant on improved electronics and signal processing. An exception was the University of California Berkeley UNICOIL cryogenic helicopter system which adopted a single coil as both transmitter and receiver. Morrison et al. (1998) showed that this array maximized the ratio of target-to-host response in conductive environments. UNICOIL development was suspended in the early 1990s, but the same principle was used by AeroQuest in the AeroTEM transient (time domain) AEM system, which places the receiving coil centrally within the transmitting loop, thus achieving the same coupling with ground conductors simultaneously in both coils.

Figure 1. AeroTEM 1 bird and helicopter.

This configuration has been shown (e.g. Buselli, 1977) to have significant advantages over the loop-loop method in ground TEM (transient EM) applications, particularly in conditions of high ground conductivity. Among the advantages are maximization of target-to-background response, simpler and sharper anomalies, enhancement of discrete conductors, and insensitivity to conductor strike direction. In addition, it has been shown by numerous authors (e.g., Smith and West, 1989) that the central loop configuration is optimally configured to excite a unique, negative response from bodies of modest polarizability. This feature is, in itself, a breakthrough of major importance in airborne prospecting because it is another step along the road to AIP (airborne IP).

AeroQuest began development of AeroTEM in 1996. A key feature is the rigid mounting of the receiving coil, centrally within the transmitting loop. Other features include a triangular current pulse of 1150 μs, a base frequency of 150 Hz, a transmitting loop diameter of 5 m, and orthogonal receiving coils (Z and X). Three hundred records are recorded digitally per second. Each record holds a single decay curve consisting of 100 samples with a width of 16.6 μs. These records are processed digitally offline to produce 12 channels of stacked and filtered data commencing 64 μs (selectable) after current turn-off, with channel-widths varying from 50 to 483 μs. In addition, six channels of analog data are recorded in flight, with channel-widths varying from 85 to 683 μs. The analog data are displayed raw and, after flight, filtered and merged with GPS, altimeter, and magnetometer data to provide field-ready stacked profiles.

The coil assembly, with associated electronics (Figure 1), is towed 50 m below the helicopter and nominally 30 m above terrain. In the prototype AeroTEM 1, which made its first production flight in May 1999, transmitter current was 60 A, for a dipole moment of 18 000 NIA and a bird weight of 270 Kg. In AeroTEM 2, which commenced operations a year later, dipole 4 moment was raised to 45 000 NIA, but there was an increase in weight of about 20 kg. Low in comparison with the transmitted moments of the fixed-wing, towed bird transient AEM systems, AeroTEM 2 provides comparable field strengths at normal prospecting depths, due to its much lower flying height. Additionally, the rigid coupling of the coil assembly allows anomalies as low as a few parts per billion of the transmitted field to be resolved in the received signal. Depth penetration to a moderate-sized conductor appears in excess of 200 m.



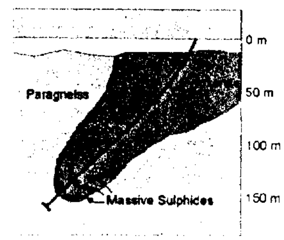


Figure 2. AeroTEM analog profiles and geology, Lac Rocher, Quebec.

Field results. Approximately 5000 line km were flown with AeroTEM I from May to December, 1999. Attempts were made to combine routine survey applications with a comprehensive series of tests over known conductors of different types and in different environments.

On an early survey in the Lac Rocher area of Quebec, a significant Ni-bearing sulphide body was clearly detected (Figure 2) where a previous survey by fixed-wing transient AEM showed no anomalies. The body was of short strike length and did not couple well with the N-S line direction of the earlier survey. A second anomaly drilled in the same area was related to a flat-lying lens of massive sulphides at a depth of 200 m.

On this and other surveys flown during the summer of 1999, the system consistently produced less overburden response and a greater number of better-defined, clearer anomalies than had been obtained by previous surveys with both fixed-wing and helicopter AEM systems. Tests conducted in the Timmins area over Nighthawk Lake and other conductors familiar to the industry confirmed the smaller "footprint" of the system and its greatly enhanced anomaly to background resolution.

During these tests and on later surveys in Manitoba

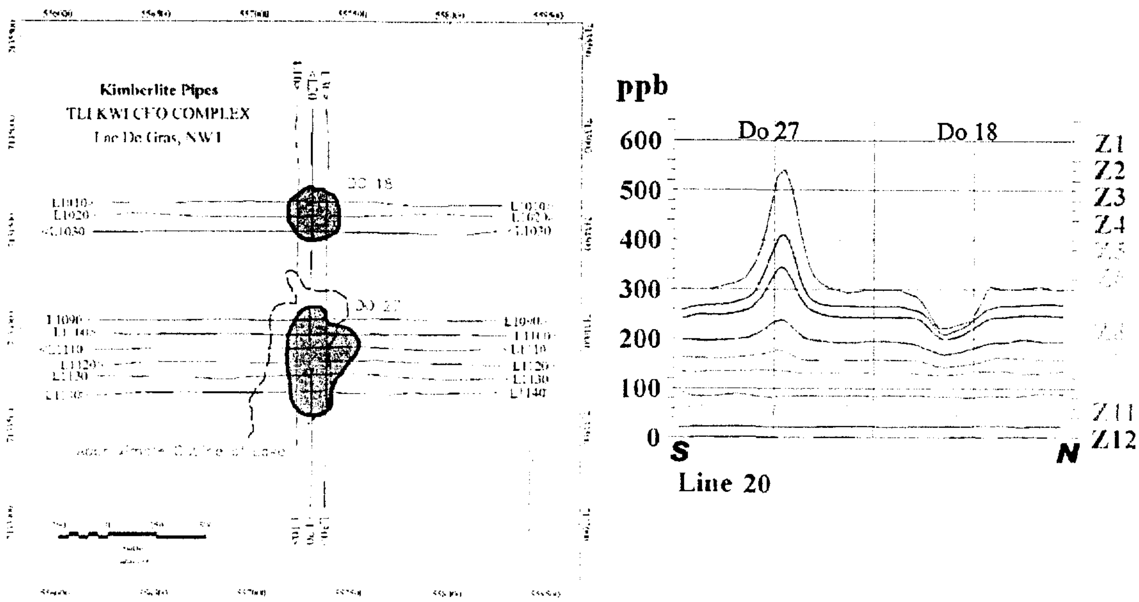


Figure 5. Digital profiles over Tli Kwi Cho kimberlite pipes, Lac de Gras, Northwest Territories.

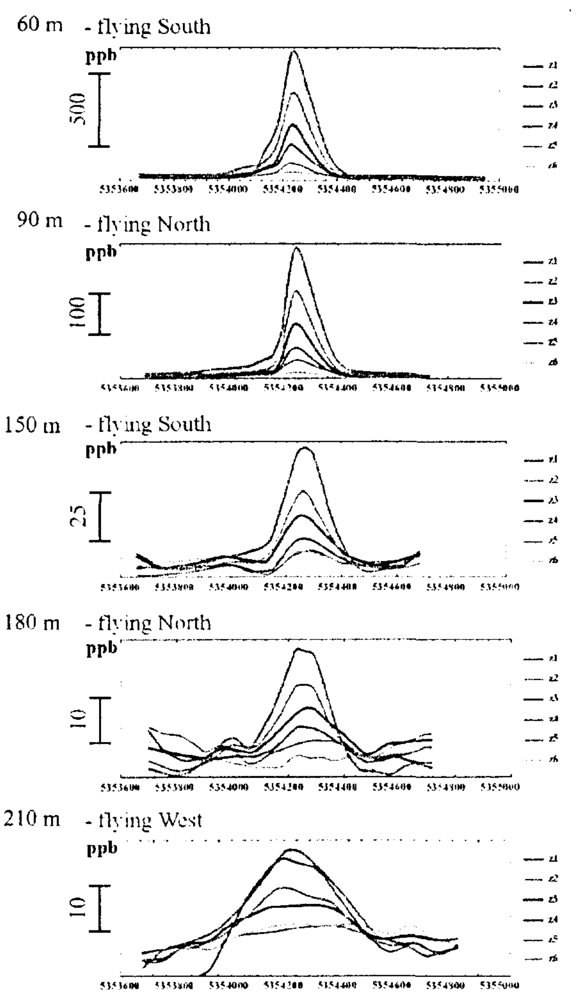


Figure 6. Digital profiles over West MacDonald Mine, Noranda, Quebec.

4 N-S and 5 E-W flight lines spaced 50 m apart. The AeroTEM anomaly appears to match perfectly the published outline of the orebody (Figures 9 and 10). The ability to contour AEM data regardless of line or conductor strike direction is unique to the AeroTEM system.

At the time of writing this paper, surveys and testing with AeroTEM (including a 30 Hz system) are continuing, and more field results will be available shortly.

Conclusions. In the one year that the AeroTEM system has been in operation, sufficient evidence has been collected to demonstrate that it is not just a better AEM device but a significant breakthrough on several fronts:

1) The expected simplicity and clear footprints of the anomalies have proven of value in resolving conductors, particularly in areas of cultural interference or overlapping conductors.
2) Several important conductors of short and/or complex strike have been detected where previous systems failed.
3) In conductive surficial conditions, AeroTEM has revealed discrete conductors not discernable in previous surveys.
4) The system shows the potential to detect and recognize bodies that exhibit a form of polarizability, rather than simple electrical conductivity. Research on this is continuing but it seems possible that airborne IP is not far away.

A new AeroTEM system of still higher power is under design. Other features may include the ability to record B, rather than dB/dt, thus improving response to bodies of ultrahigh conductance.

Suggested reading. "Transient electromagnetic measurements to late delay times over the Woodlawn ore body" by Buselli (ASEG *Bulletin*, 1977). "Airborne electromagnetic systems—50 years of development" by Fountain (*Exploration Geophysics*, 1998). "Reid-Mahaffy Field Guide" Comparison of airborne EM systems, Reid-Mahaffy test site, Ontario, Canada. (Condor Consulting Report 2000-5). "Current gathering effects in TEM"

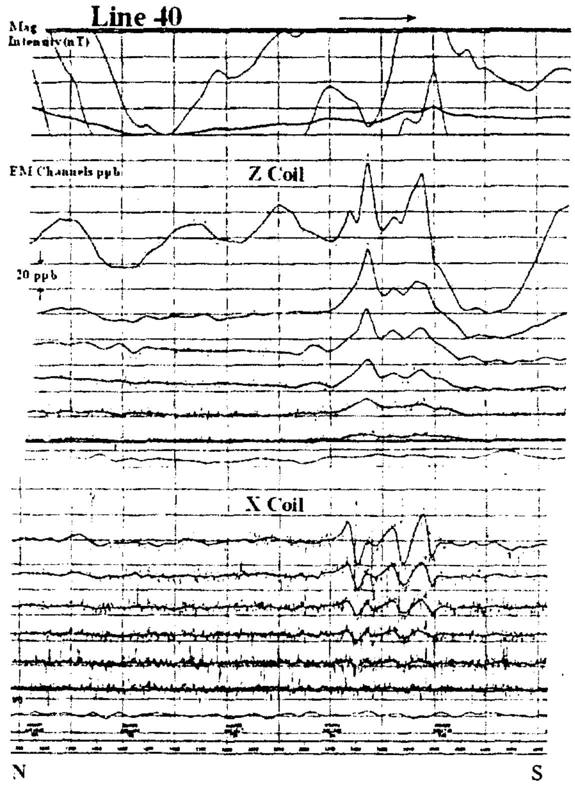


Figure 8. AeroTEM analog X coil EM and magnetic profiles, MNDM test site, line 40, normal flying height.

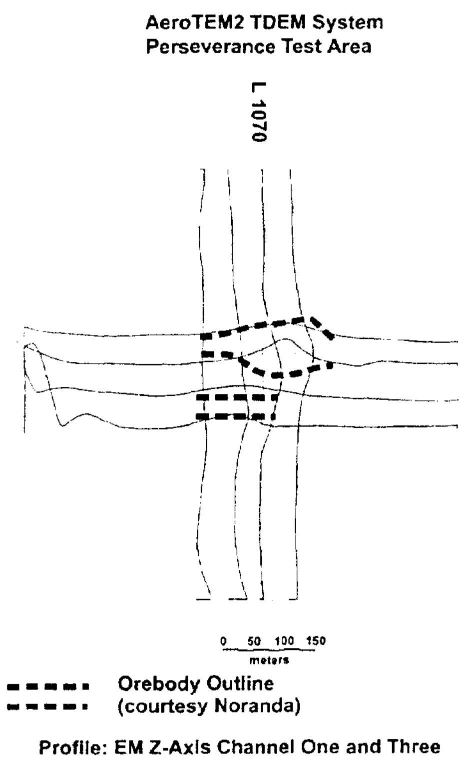


Figure 9. Perseverance profiles, EM z-axis channels 1 and 3.

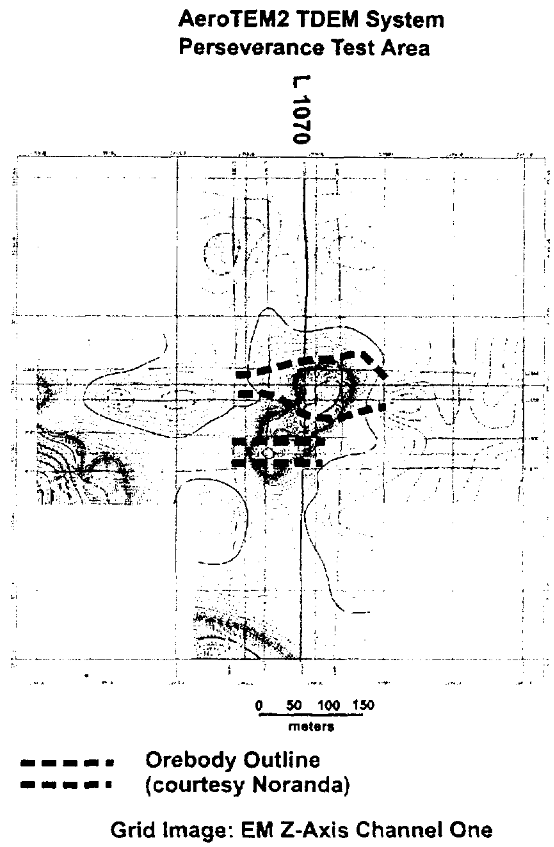


Figure 10. Perseverance grid, EM z-axis channel 1 contours.

by McCracken et al. (Presented at 1981 SEG Annual Meeting). "Physics of airborne EM systems" by Morrison et al. (*Exploration Geophysics*, 1998). "Airborne magnetic and electromagnetic surveys, Reid-Mahaffy airborne geophysical test site survey, Miscellaneous Release-Data (MRD) 55, Geological setting, measured and processed data, and derived products" by Reford and Fyon (Ontario Geological Survey, Sudbury, Ontario, Canada, 2000). "Field examples of negative coincident-loop transient electromagnetic responses modeled with polarizable half-planes" by Smith and West (GEOPHYSICS, 1989). E

Acknowledgments: The authors are grateful to Aurogin Resources, sole licensees of the AeroTEM system, for providing test results and funding ongoing system development. Digital data processing and analysis was done under contract by Paterson, Grant & Watson.

Corresponding author: paterson@georgian.net

Appendix 4: Instrumentation Specification Sheets

System Characteristics:
Transmitter: Triangular Pulse Shape Base Frequency 30 or 150 Hz.
Tx On Time - 5,750 (30Hz) or 1,150 (150Hz) μsec.
Tx Off Time - 10,915 (30Hz) or 2,183 (150Hz) μsec.
Loop Diameter - 5 m.
Peak Current - 250 A.
Peak Moment - 40,000 NIA.
Typical Z Axis Noise at Survey Speed = 8 ppb peak.
Sling Weight: 270 Kg.
Length of Tow Cable: 40 m.
Bird Survey Height: 30 m or less nominal.

Receiver:
Three Axis Receiver Coils (x, y, z) positioned at centre of transmitter loop.
Selectable Time Delay to start of first channel 20, 40, or 60 μsec.

Analog Display & Acquisition:
Six Channels per Axis.
Analogue Channel Widths: 85.3, 85.3, 170.7, 170.7, 341.3, 682.6 μsec.
Recording & Display Rate = 10 readings per second.
Digital recording at 108 sample per decay curve at a maximum of 300 curves per second (16.67 or 83.34 μsec channel width).

System Considerations:
Comparing a fixed wing time domain transmitter with a typical moment of 500,000 NIA flying at an altitude of 120 m with a Helicopter TDEM at 30 m, notwithstanding, the substantial moment loss in the airframe of the fixed wing, the same penetration by the lower flying helicopter system would only require a sixty-fourth of the moment. Clearly the *AEROTEM* system with 40,000 NIA has more than sufficient moment.

The airframe of the fixed wing presents a response to the towed bird, which must be compensated for dynamically. This problem is non-existent for *AEROTEM* since transmitter and receiver positions are fixed. The *AEROTEM* System is completely portable, and can be assembled at the survey site within half a day.

EVALUATION OF SURVEY RESULTS OF THE HELICOPTER BORNE MAGNETIC AND ELECTROMAGNETIC SURVEY BY AEROQUEST LIMITED

Post Creek Block
Sudbury Area, Ontario
NTS 41-I-10

For

Namex Exploration
4333 St Catherine St. West
Montreal, P.Q., H3Z 1P9

by

Eberhard K. Berrer, Dipl. Geoph.
309 Edgewater Rd.
Sudbury, Ontario, P3G 1J8

July 15,2002

Table of Content

Figure

EVALUATION OF SURVEY RESULTS HELICOPTER BORNE MAGNETIC AND ELECTROMAGNETIC SURVEY BY AEROQUEST LIMITED

This evaluation of the results of the survey by Aeroquest will assess the magnetic and electromagnetic data. The results are contained in a report compiled by Mr. N. Fiset for Aeroquest. Included in the report by N. Fiset is a description of the helicopter system, the results, and the data from the survey in the maps, and profiles as well as the digital data on a CD.

General:
Areoquest has developed the AEROTEM helicopter system as a new electromagnetic tool for mineral exploration during the last few years. Aeroquest was successful in detecting a small known Ni-sulfide deposit at a depth of 100m to 200m, a significant achievement that showed the capabilities of this airborne electromagnetic exploration tool.

This helicopter borne system employs measurement of the electromagnetic decay in the time domain. The time domain method has been used successfully for mineral exploration for many years in various forms and has been found to be very diagnostic for finding conductive mineral deposits. The ability of measuring the decay of the secondary electromagnetic field over time has some advantages over frequency domain, which helps in the interpretation of the responses from conductive bodies. The responses from conductive bodies, called anomalies, usually must still be followed up on the ground with electromagnetic surveys.

Post Creek Area:
The area is located in the northeast corner of the Sudbury Basin just outside of the Sudbury Igneous Complex (SIC). It is mainly located in the footwall geology and has become an interesting environment in the search for sulfide deposits, which can be economically significant. These deposits are often covered by overburden or are contained in the rock mass, which is not recognizable from surface mapping. The area covered by this survey is outlined on the map of the report by N. Fiset. Included in the area covered by the survey is an area marked by claim boundaries. Therefore, in this report the results of the electromagnetic survey have been separated into two parts: 1. the area inside the claim outline, and 2. the area outside of the claim outline. In this case, the area outside of the claims contains more significant airborne electromagnetic anomalies than the area inside of the claim outlines.

Survey Coverage:
The helicopter survey covered 29 lines flown in a northeast/southwest direction, each line approximately 4km in length, and 5 control lines in a northwest/southeast direction also about 4km long. The line spacing is mostly 50m with some lines 100m and 300m apart. The technical details of the magnetic and the electromagnetic equipment as well as the survey parameters are described in the report by Aeroquest Limited.

Interpretation:

1. Magnetic Survey: The results of the magnetic survey are presented in the form of color-contoured maps. They consist of one map showing the Total Magnetic Intensity map and the Vertical Magnetic Gradient map.

   a. The Total Magnetic Intensity map shows mainly the concentration of magnetite in the underlying rock. There is a distinct area of higher magnetic intensity of up to 500 n/T to the southwest, which may be correlated with a more magnetite rich or more mafic part of the Floodwall rock in this area (Migmatites and Felsic Plutonic Rocks, OGS Geological Map #2491). In the center and to the east of the survey area the magnetic intensity varies and shows smaller anomalies of higher intensity with dimensions in the 200m range. These possibly indicate more mafic portions of the metavolcanics. A larger body of more mafic volcanics is indicated also to the east of the area covered.

b. The Vertical Magnetic Gradient shows features, which are more or less the same as on the Total Magnetic Intensity map; however, the contacts of the bodies are giving a better definition of the boundaries of the magnetic sources.

2. Electromagnetic Survey: In the report by Aeroquest, the results of the electromagnetic survey are shown in the form of circular symbols (responses) on all of the maps and are shown in profile form for channels 1 and 3 of the electromagnetic recordings. For the evaluation of the electromagnetic responses, data in profile form was used.

a. Inside the claim outline on the maps there is very little conductivity recorded. The only creditable response (anomaly) is found on L170. It is a weak response from a very short conductor associated with a small magnetic anomaly at the tail end of a larger and stronger magnetic anomaly. The only other response on L2050 is of doubtful existence.

b. Outside of the claims shown on the map are 12 groups or single responses, which show interesting conductivities. They are included in a list of anomalies of all responses marked on the maps contained in the report.

Anomaly #	# of Responses	Line #	Highest Channel	Ration Ch1/Ch3	Line/Label
1	1	1070	3	3.0	1070/a
2	1	2050	1	-	-
3	4	2040-2070	4	2.5	2050/A
4	1	3060	6	2.1	3060/A
5	1	6010	6	1.8	6010/A
6	3	3100-3120	6	2.5	3120/A
7	4	3090-3120	6	3.0	3120/B
8	4	3060-3090	6	2.3	3090/A
9	4	3050-3100	6	2.0	3100/C
10	2	3020-3060	6	2.0	3020/B
11	1	3020	4	3.2	3020/A
12	4	2090-2120	6	2.2	2120/A
13	2	5010-5020	5	2.8	5010/A
14	2	4010-4020	4	2.6	4020/A

The above table shows single responses or several responses were grouped together. They were assigned an anomaly number to indicate that most likely the responses are caused by one and the same ground conductor. The quality of the conductor is shown in the number of channels it was recorded in. The higher the channel number, the better the conductor. For the assessment of the response also the ratio of channel 1 to channel 3 was used. The smaller the number of the ratio, the better the quality of the conductor. In the case where the anomaly consisted of several responses, the best response was selected and marked in the table together with the line number and the label letter.

Assessment of the Anomalies:

Anomaly 1: The single response is small and there is no indication that it has any significant strike length and it does not appear to be associated with a magnetic anomaly.

Anomaly 2: This single response has very small amplitude and exists only in channel 1. It is of doubtful existence.

Anomaly 3: This anomaly exists of 4 responses of moderate conductivity. They indicate a northwest-striking conductor, which is well associated with a small magnetic anomaly. The strike of the magnetics and of the conductivity is parallel to the basin contact.

Anomaly 4: This single anomaly was picked up by the survey because the flight line extended further to the southwest than adjacent lines. It is located near the Post Creek showing which carries Ni/Cu and PG mineralization. The broader width of the anomaly indicates that the strike of the conductor may be of a flat angle to the flight line. The correlation with magnetics is poor possibly because there are no adjacent flight lines, however, the background values are low.

Anomaly 5: This anomaly is a single broad response of good quality picked up on a control line, which was flown to tie the magnetic levels together for the whole area. It is a good and strong response and the conductor may have a strike at a flat angle to the flight line. It appears to be associated with a magnetic anomaly.

Anomaly 6: This group of 3 responses is of good to moderate quality and indicates a conductor striking in a north/south direction. It is very likely the southern extension of the next conductor explained in Anomaly 8. It is located on the flank of a strong magnetic anomaly to the east

Anomaly 7: This anomaly consists of a group of 4 responses, which indicate a conductive zone of at least 200m length. A good conductor is indicated. It occurs in an area of elevated magnetic background possibly caused by more mafic portions of the matavolcanics in this area. The EM profiles indicate a best amplitude ratio of only 1.8. The conductor strikes in a north/northwest direction.

Anomaly 8: This conductor strikes parallel to the conductor of Anomaly 7. The best response has a ratio of 2.3. The strike of this conductor does not agree with the trend of the magnetic contours, indicating that there is little association with the magnetic signature of the matavolcanics. There are indications which point to the possibility that it continues on to Anomaly 6

Anomaly 9: This anomaly consists of a group of 4 responses, 3 of which are 6 channel responses. Their amplitudes are slightly smaller than those previously described possibly covered by a thicker layer of overburden. They appear to wrap around a small circular magnetic anomaly. The best amplitude ratio is 2.0.

Anomaly 10: These two responses can be interpreted to belong to the same structure although they are about 200m apart. There are, however, some small indications on lines between the two responses which support the strike. No direct magnetic association can be established. The best response on L3020 has a ratio of only 3.

Anomaly 11: This is a single channel 4 response with support on adjacent lines which are at a distance of 100m from the response. It is located in an area of higher magnetic background.

Anomaly 12: This group of 4 responses has the highest amplitude of all responses of the survey, indicating a strong conductor under minor overburden cover. There is, however, no good correlation with the magnetics. The best ratio is a respectable 2.2. The strike is very obvious to the northwest.

Anomaly 13: These two responses at the north end of 2 control lines are relatively weak and probably covered by a thicker layer of overburden. They are located over the area of the Parkin Offset Dike. They fall into an area of magnetic low. The best ratio is 2.8.

Anomaly 14: These two mediocre responses fall into the area of the west end of the Parkin Offset Dike, indicating a moderate to poor conductivity at some depth below surface. The best ratio is 2.6.

Conclusions:

All of the above-described anomalies, except for Anomaly 2, are of interest and are very likely caused by ground conductors. They should be investigated on the ground with a geological survey. If no satisfactory geological explanation is found for the conductors, geophysical follow-up surveys should be carried out employing magnetic and electromagnetic methods. Such surveys will better indicate the location, the size, the conductivity, and the depth of the conductive source. An appropriate method for the electromagnetic investigation would be a survey with a horizontal loop system.

July 15, 2002

Eberhard Berrer

Eberhard K. Berrer
309 Edgewater Road
Sudbury, Ontario P3G 1J8

July 15, 2002

Mr. Jim Hess
Namex Exploration Inc.
4333 St. Catherine St. West
Montreal, P.Q.
H3Z 1P9

Dear Mr. Hess,

Re: Helicopter Borne Magnetic and Electromagnetic Survey, Post Creek Block, Sudbury, NTS 41-I-10

Dr. Walter Peredery has asked me on behalf of Namex Exploration Inc. to provide an evaluation of the results of a Helicopter Borne Magnetic and Electromagnetic Survey carried out by Aeroquest Limited of Milton, Ontario in May of 2001. The survey was undertaken to explore an area, which is covered by the Footwall in the northeast corner of the Sudbury Basin over the Post Creek Block.

Please find enclosed my report of the evaluation. Unfortunately, the digital data could not all be extracted from the CD because of some corruption of the data.

Enclosed also please find my account which is respectfully submitted.

Yours very truly,

Eberhard K. Berrer

Encl.

cc: Dr. W. V. Peredery
1974 Armstrong Street
Sudbury, Ontario
P3E 4W1

ONTARIO MINISTRY OF NORTHERN DEVELOPMENT AND MINES

Work Report Summary

Transaction No:	W0370.00815	**Status:**	APPROVED
Recording Date:	2003-MAY-12	**Work Done from:**	2002-JUN-01
Approval Date:	2003-JUL-24	**to:**	2002-JUL-15

Client(s):

111562 BRADY, JOHN GREGORY

116945 CHAMPION BEAR RESOURCES LTD.

Survey Type(s):

AEM AMAG

41I15SW2049 2.25613 PARKIN 900

Work Report Details:

Claim#		Perform	Perform Approve	Applied	Applied Approve	Assign	Assign Approve	Reserve	Reserve Approve	Due Date
S	648540	$518	$518	$0	$0	$0	0	$518	$518	2006-MAR-04
S	648547	$518	$518	$0	$0	$0	0	$518	$518	2006-MAR-04
S	648548	$518	$518	$0	$0	$0	0	$518	$518	2006-MAR-04
S	648699	$500	$500	$0	$0	$0	0	$500	$500	2006-MAR-04
S	648700	$518	$518	$0	$0	$0	0	$518	$518	2006-MAR-04
S	682109	$518	$518	$0	$0	$0	0	$518	$518	2006-MAR-14
S	682110	$518	$518	$0	$0	$0	0	$518	$518	2006-MAR-14
S	682112	$518	$518	$0	$0	$0	0	$518	$518	2006-MAR-14
S	682113	$518	$518	$0	$0	$0	0	$518	$518	2006-MAR-14
S	682280	$500	$500	$0	$0	$0	0	$500	$500	2006-MAR-14
S	682282	$518	$518	$0	$0	$0	0	$518	$518	2006-MAR-14
S	682283	$518	$518	$0	$0	$0	0	$518	$518	2006-MAR-14
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S	854183	$518	$518	$0	$0	$0	0	$518	$518	2006-AUG-19
S	854184	$518	$518	$0	$0	$0	0	$518	$518	2006-AUG-19
S	854185	$518	$518	$0	$0	$0	0	$518	$518	2006-AUG-19
S	854186	$518	$518	$0	$0	$0	0	$518	$518	2006-AUG-19
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S	854573	$518	$518	$0	$0	$0	0	$518	$518	2006-NOV-25
S	864654	$518	$518	$0	$0	$0	0	$518	$518	2006-NOV-25
S	864655	$518	$518	$0	$0	$0	0	$518	$518	2006-NOV-25
S	864656	$518	$518	$0	$0	$0	0	$518	$518	2006-NOV-25
S	894711	$518	$518	$0	$0	$0	0	$518	$518	2006-MAY-08
S	894747	$518	$518	$0	$0	$0	0	$518	$518	2006-MAY-08
S	894748	$518	$518	$0	$0	$0	0	$518	$518	2006-MAY-08
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S	1094825	$518	$518	$0	$0	$0	0	$518	$518	2006-APR-24
S	1094826	$518	$518	$0	$0	$0	0	$518	$518	2006-APR-24
S	1094834	$518	$518	$0	$0	$0	0	$518	$518	2006-APR-24
S	1094835	$518	$518	$0	$0	$0	0	$518	$518	2008-APR-24
S	1198500	$518	$518	$0	$0	$0	0	$518	$518	2005-JUN-27
S	1222817	$1,081	$1,081	$0	$0	$0	0	$1,081	$1,081	2005-MAR-13
S	1244704	$1,036	$1,036	$0	$0	$0	0	$1,036	$1,036	2005-JUL-21
		$18,139	$18,139	$0	$0	$0	$0	$18,139	$18,139	

Work Report Summary

Transaction No:	W0370.00815	**Status:**	APPROVED
Recording Date:	2003-MAY-12	**Work Done from:**	2002-JUN-01
Approval Date:	2003-JUL-24	**to:**	2002-JUL-15

External Credits: $0

Reserve:

$18,139	Reserve of Work Report#: W0370.00815
$18,139	Total Remaining

Status of claim is based on information currently on record.

Ministry of
Northern Development
and Mines

Ministère du
Développement du Nord
et des Mines

Ontario

GEOSCIENCE ASSESSMENT OFFICE
933 RAMSEY LAKE ROAD, 6th FLOOR
SUDBURY, ONTARIO
P3E 6B5

Tel: (888) 415-9845
Fax:(877) 670-1555

Date: 2003-JUL-24

JOHN GREGORY BRADY
1227 HOLLAND ROAD
SUDBURY, ONTARIO
P3A 3R1 CANADA

Submission Number: 2.25613
Transaction Number(s): W0370.00815

Dear Sir or Madam

Subject: Approval of Assessment Work

We have approved your Assessment Work Submission with the above noted Transaction Number(s). The attached Work Report Summary indicates the results of the approval.

At the discretion of the Ministry, the assessment work performed on the mining lands noted in this work report may be subject to inspection and/or investigation at any time.

Thank you for your prompt response to the 45 Day Notice dated July 16, 2003. The deficiencies outlined in the Notice have been corrected. Accordingly, assessment work credit has been approved as outlined on the Declaration of Assessment Work Form and the AMENDED Declaration of Assessment Work Form that accompanied t submission.

If you have any question regarding this correspondence, please contact STEVEN BENETEAU by email at steve.beneteau@ndm.gov.on.ca or by phone at (705) 670-5855.

Yours Sincerely,

Ron Gashinski
Senior Manager, Mining Lands Section

Cc: Resident Geologist

John Gregory Brady
(Claim Holder)

Champion Bear Resources Ltd.
(Claim Holder)

Assessment File Library

John Gregory Brady
(Assessment Office)

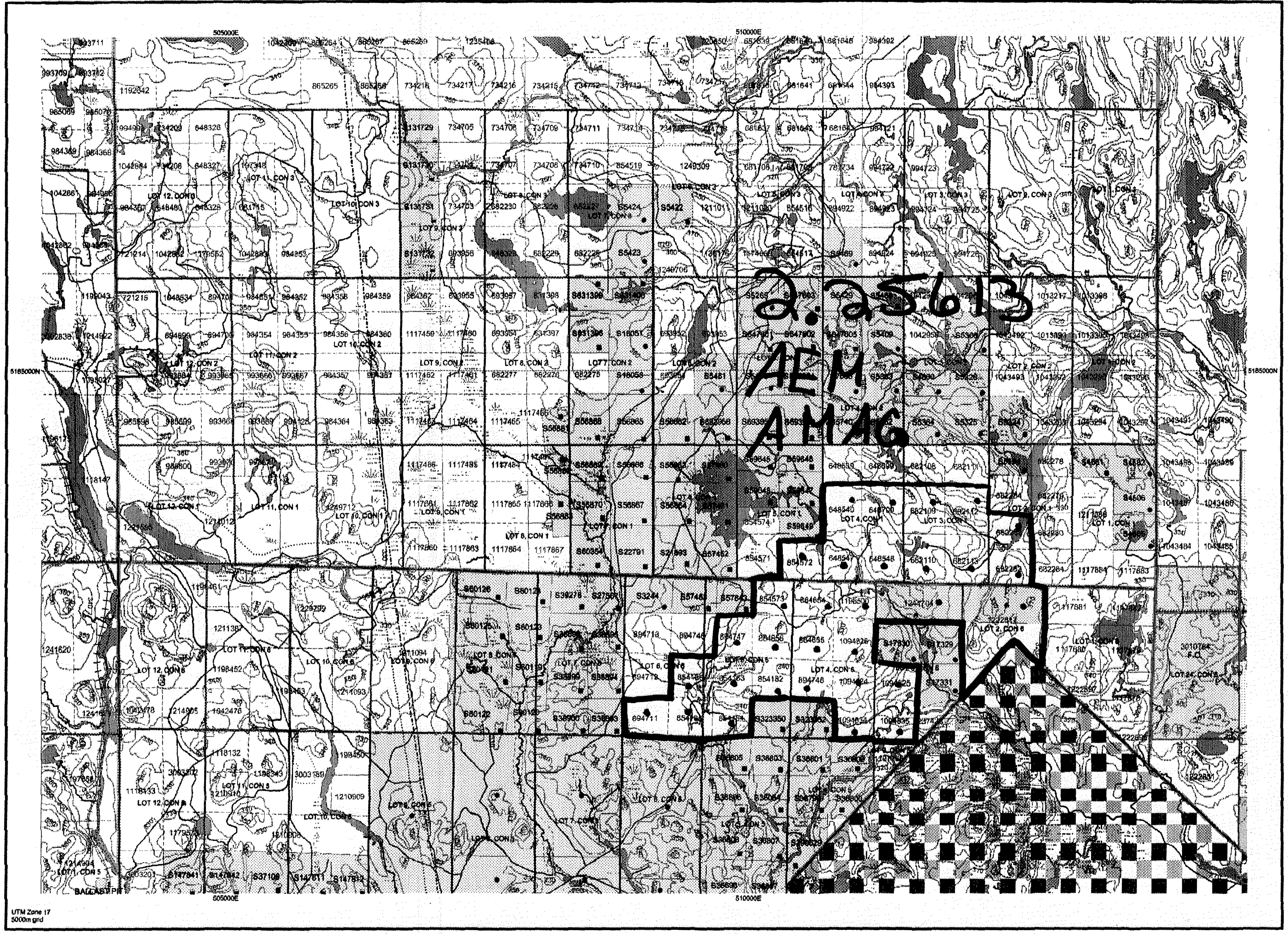
ONTARIO CANADA — MINISTRY OF NORTHERN DEVELOPMENT AND MINES — PROVINCIAL MINING RECORDER'S OFFICE

Mining Land Tenure Map

Date / Time of Issue: Fri Jul 25 11:15:12 EDT 2003

TOWNSHIP / AREA PARKIN

PLAN G-2915



ADMINISTRATIVE DISTRICTS / DIVISIONS

Mining Division	Sudbury
Land Titles/Registry Division	SUDBURY
Ministry of Natural Resources District	SUDBURY

TOPOGRAPHIC

- Administrative Boundaries
- Township
- Concession, Lot
- Provincial Park
- Indian Reserve
- Cliff, Pit & Pile
- Contour
- Mine Shafts
- Mine Headframe
- Railway
- Road
- Trail
- Natural Gas Pipeline
- Utilities
- Tower

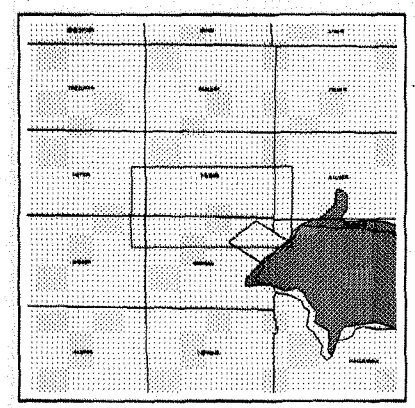
Land Tenure

Freehold Patent
- Surface And Mining Rights
- Surface Rights Only
- Mining Rights Only

Leasehold Patent
- Surface And Mining Rights
- Surface Rights Only
- Mining Rights Only

Licence of Occupation
- Uses Not Specified
- Surface And Mining Rights
- Surface Rights Only
- Mining Rights Only

- Land Use Permit
- Order In Council (Not open for staking)
- Water Power Lease Agreement
- 1234567 Mining Claim
- 1234567 Filed Only Mining Claims



LAND TENURE WITHDRAWALS

- 1234 Areas Withdrawn from Disposition

Mining Acts Withdrawal Types
- Wsm Surface And Mining Rights Withdrawn
- Ws Surface Rights Only Withdrawn
- Wm Mining Rights Only Withdrawn

Order In Council Withdrawal Types
- W'sm Surface And Mining Rights Withdrawn
- W's Surface Rights Only Withdrawn
- W'm Mining Rights Only Withdrawn

- IMPORTANT NOTICE

Scale 1:40000

700m 0m 2.1km

LAND TENURE WITHDRAWAL DESCRIPTIONS

Identifier	Type	Date	Description
F.O.	Wsm	May 6, 2003	<a href=" http://www.mci.mndm.gov.on.ca/Claims/Cf_Claims/clm_css
W-S-11/97	Wsm	Apr 17, 1997	EXPLORATORY LICENSE OF OCCUPATION 14927 SEC.35 W-S-1'
W.67/76	Wm	Jan 1, 1980	SEC.36/80 W.67/76 17/11/76 MRO 7598 vol.9 Mining rights of the la

Those wishing to stake mining claims should consult with the Provincial Mining Recorders' Office of the Ministry of Northern Development and Mines for additional information on the status of the lands shown hereon. This map is not intended for navigational, survey, or land title determination purposes as the information shown on this map is compiled from various sources. Completeness and accuracy are not guaranteed. Additional information may also be obtained through the local Land Titles or Registry Office, or the Ministry of Natural Resources.

The information shown is derived from digital data available in the Provincial Mining Recorders' Office at the time of downloading from the Ministry of Northern Development and Mines web site.

General Information and Limitations

Contact Information:
Provincial Mining Recorders' Office
Willet Green Miller Centre 933 Ramsey Lake Road
Sudbury ON P3E 6B5
Home Page: www.mndm.gov.on.ca/MNDM/MINES/LANDS/mlsmnpge.htm

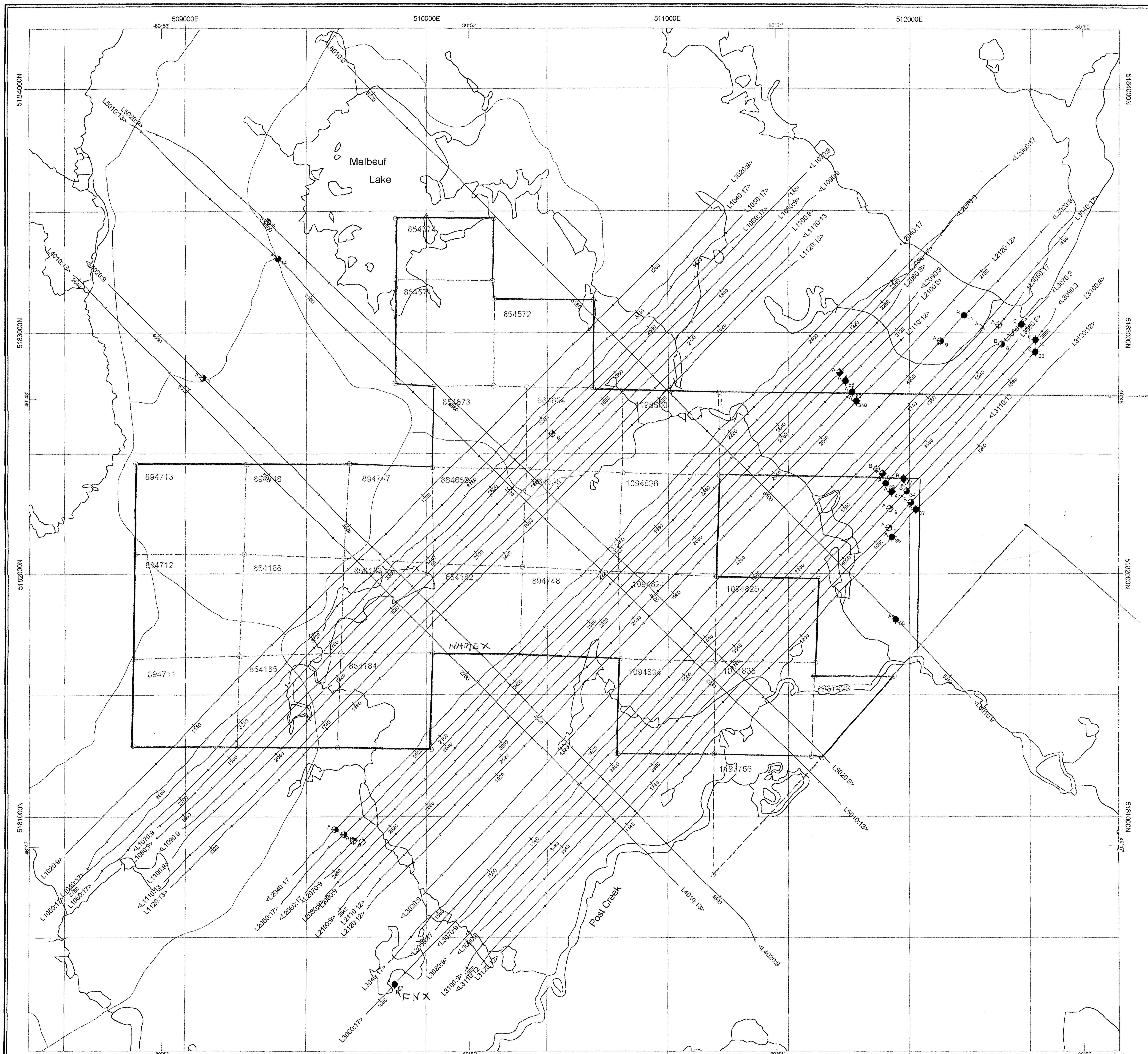
Toll Free
Tel: 1 (888) 415-9845 ext 5781
Fax: 1 (877) 670-1444

Map Datum: NAD 83
Projection: UTM (6 degree)
Topographic Data Source: Land Information Ontario
Mining Land Tenure Source: Provincial Mining Recorders' Office

This map may not show unregistered land tenure and interests in land including certain patents, leases, easements, right of ways, flooding rights, licences, or other forms of disposition of rights and interest from the Crown. Also certain land tenure and land uses that restrict or prohibit free entry to stake mining claims may not be illustrated.

41I15SW2049 2.25613 PARKIN

210



Grid North
NAD27 - UTM Zone 17

AEROTEM Anomaly Symbols:

6 Channel (positive, negative) ....
5 Channel (positive, negative) ....
4 Channel (positive, negative) ....
3 Channel (positive, negative) ....
2 Channel (positive, negative) ....
1 Channel (positive, negative) ....
Indeterminate (positive, negative) .
Power Line ....
High Voltage Line ....
Other Culture ....

Anomaly Letter A 35
Z3 Amplitude (ppb) or 1st negative channel

SURVEY SPECIFICATIONS:
- Survey flown: March 19, 2001
- Traverse line spacing: 40 metres
- Traverse line direction: N45E & N135E
- Nominal EM bird height: 30 metres
- Aircraft: Eurocopter AStar-AS350/BA C-FHAK

INSTRUMENTATION:
- Data acquisition: RMS DGR-33
- Magnetometer: Geometrics G822A cesium vapour
  - Installation: Towed bird 21 m above EM bird
  - Resolution: .001 nanoTesla
- Electromagnetics: AEROTEM Time Domain System
  - Configuration: Towed bird

NAVIGATION:
- Navigation: by GPS
- Navigation equipment: Ashtech GPS/GLONASS GG24
- Radar Altimeter: Terra TRA 3500/TRI-30

DATA PROCESSING
- Magnetics: IGRF correction & base station levelling applied
- EM smoothing: NL-8pts, Low Pass-30pt

MAP PROJECTION
- Projection: Universal Transverse Mercator
- Central Meridian: 81W (Zone 17)
- Central Scale Factor: 0.9996
- False Easting/Northing: 500,000m/0m
- Ellipsoid: Clark 1866
  - Major Axis: 6378249.145
  - Eccentricity: 0.082483400
- Datum: Canada 1927 Mean
- Local datum shift (x,y,z): 10,-158,-187

scale 1:10,000

200 0 200 400 600
metre

Namex Explorations Inc.
Sudbury Area, Ontario

FLIGHT PATH

Post Creek Property

NTS 41I/15

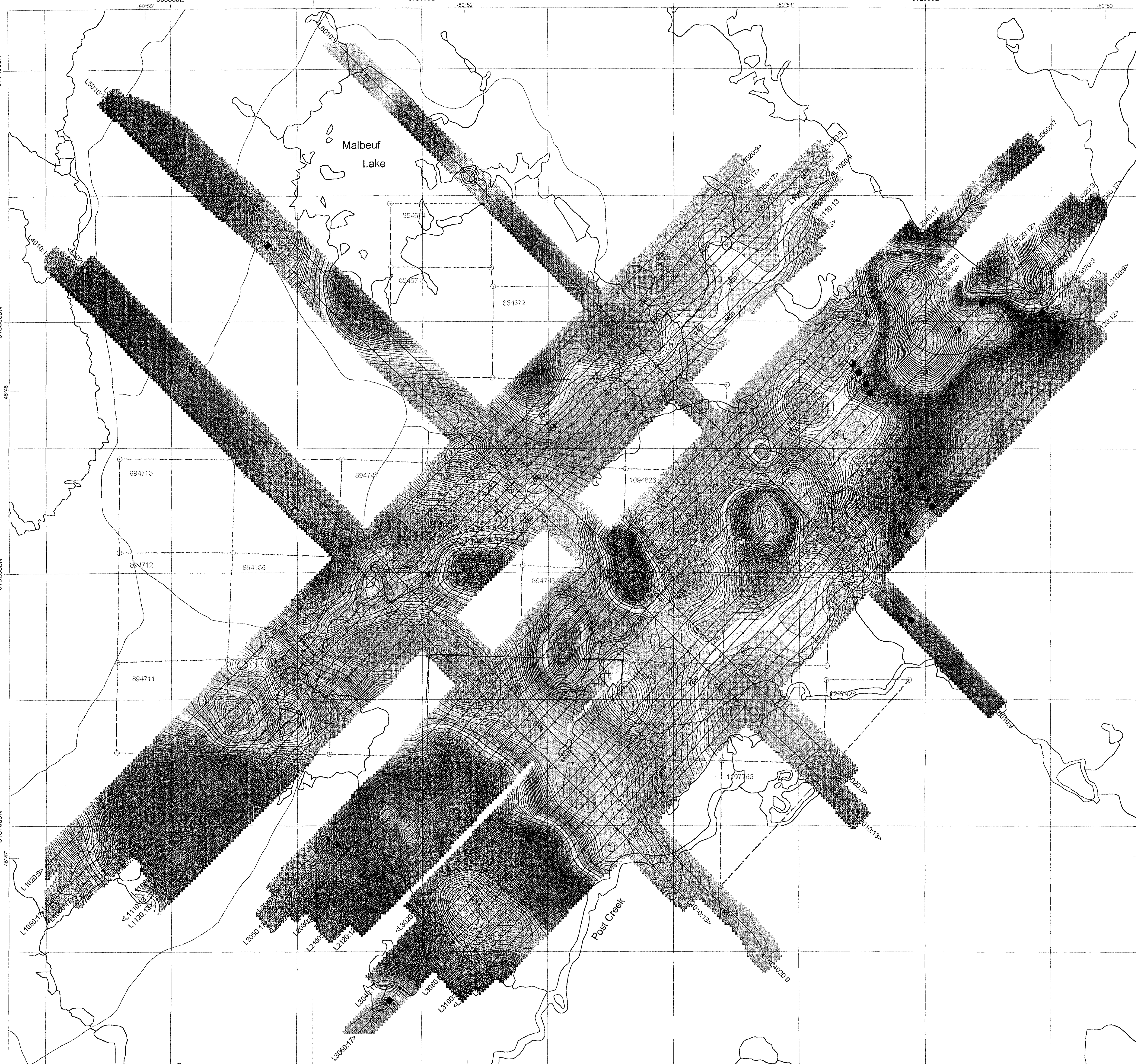
Survey flown by:

AEROQUEST LIMITED
7235 Appleby Line,
Milton, Ont., CANADA L9T 2Y1
Tel: (905) 878-5616 Fax: (905) 876-0193

March, 2001

Plate

20103A-FP_10k/Rev 1.0



Grid North
NAD27 - UTM Zone 17

41I15SW2049 2.25613 PARKIN 220

AEROTEM Anomaly Symbols:

6 Channel (positive, negative) ....
5 Channel (positive, negative) ....
4 Channel (positive, negative) ....
3 Channel (positive, negative) ....
2 Channel (positive, negative) ....
1 Channel (positive, negative) ....
Indeterminate (positive, negative) .
Power Line ....
High Voltage Line ....
Other Culture ....

Anomaly Letter A 35
Z3 Amplitude (ppb) or 1st negative channel

SURVEY SPECIFICATIONS:
- Survey flown: March 19, 2001
- Traverse line spacing: 40 metres
- Traverse line direction: N45E & N135E
- Nominal EM bird height: 30 metres
- Aircraft: Eurocopter AStar-AS350/BA C-FHAK

INSTRUMENTATION:
- Data acquisition: RMS DGR-33
- Magnetometer: Geometrics G822A cesium vapour
  - Installation: Towed bird 21 m above EM bird
  - Resolution: .001 nanoTesla
- Electromagnetics: AEROTEM Time Domain System
  - Configuration: Towed bird

NAVIGATION:
- Navigation: by GPS
- Navigation equipment: Ashtech GPS/GLONASS GG24
- Radar Altimeter: Terra TRA 3500/TRI-30

DATA PROCESSING
- Magnetics: IGRF correction & base station levelling applied
- EM smoothing: NL-8pts, Low Pass-30pt

MAP PROJECTION
- Projection: Universal Transverse Mercator
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- Ellipsoid: Clark 1866
  - Major Axis: 6378249.145
  - Eccentricity: 0.082483400
- Datum: Canada 1927 Mean
- Local datum shift (x,y,z): 10,-158,-187

Contour interval: 5, 25 & 125 nT

scale 1:10,000

200 0 200 400 600
metre

Namex Explorations Inc.
Sudbury Area, Ontario

TOTAL MAGNETIC INTENSITY

Post Creek Property

NTS 41I/15

Survey flown by:

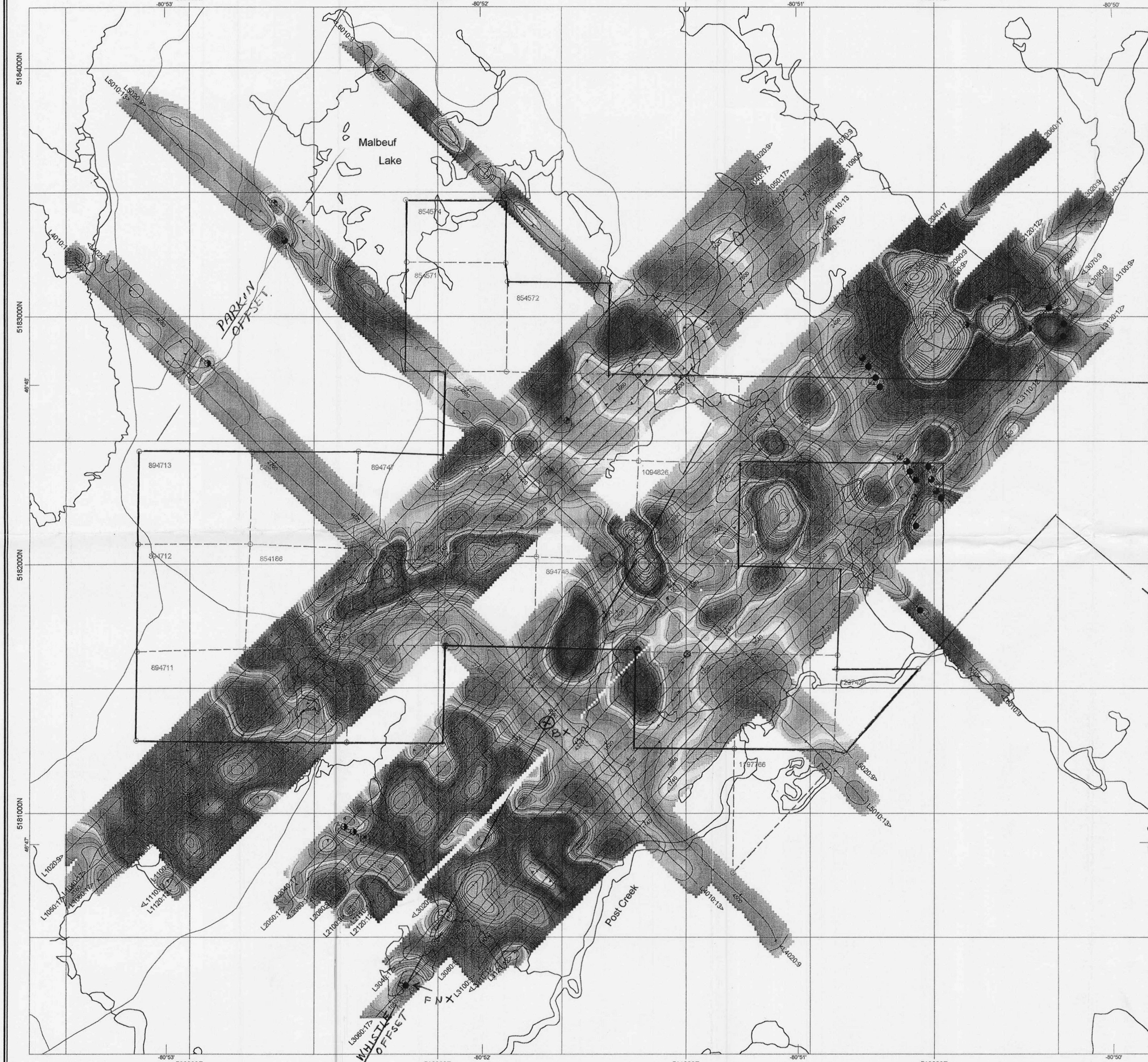
AEROQUEST LIMITED
7235 Appleby Line,
Milton, Ont., CANADA L9T 2Y1
Tel: (905) 878-5616 Fax: (905) 878-0193

March, 2001

2.25613

Plate

20103A-Mag_10k/Rev 1.0



Grid North
NAD27 - UTM Zone 17

41I15SW2049 2.25613 PARKIN 230

Vertical Gradient
nT/m

AEROTEM Anomaly Symbols:

6 Channel (positive, negative) ....
5 Channel (positive, negative) ....
4 Channel (positive, negative) ....
3 Channel (positive, negative) ....
2 Channel (positive, negative) ....
1 Channel (positive, negative) ....
Indeterminate (positive, negative) .
Power Line ....
High Voltage Line ....
Other Culture ....

Anomaly Letter A 35 Z3 Amplitude (ppb) or 1st negative channel

SURVEY SPECIFICATIONS:
Survey flown: March 19, 2001
Traverse line spacing: 40 metres
Traverse line direction: N45E & N135E
Nominal EM bird height: 30 metres
Aircraft: Eurocopter AStar-AS350/BA C-FHAK

INSTRUMENTATION:
Data acquisition: RMS DGR-33
Magnetometer: Geometrics G822A cesium vapour
Installation: Towed bird 21 m above EM bird
Resolution: .001 nanoTesla
Electromagnetics: AEROTEM Time Domain System
Configuration: Towed bird

NAVIGATION:
Navigation: by GPS
Navigation equipment: Ashtech GPS/GLONASS GG24
Radar Altimeter: Terra TRA 3500/TRI-30

DATA PROCESSING
Magnetics: IGRF correction & base station levelling applied
EM smoothing: NL-8pts, Low Pass-30pt

MAP PROJECTION
Projection: Universal Transverse Mercator
Central Meridian: 81W (Zone 17)
Central Scale Factor: 0.9996
False Easting/Northing: 500,000m/0m
Ellipsoid: Clark 1866
Major Axis: 6378249.145
Eccentricity: 0.082483400
Datum: Canada 1927 Mean
Local datum shift (x,y,z): 10,-158,-187

Contour interval: 0.1, 0.5 & 2.5 nT/metre

scale 1:10,000

200 0 200 400 600
metre

Namex Explorations Inc.
Sudbury Area, Ontario

VERTICAL MAGNETIC GRADIENT

Post Creek Property

NTS 41I/15

2.25613

Survey flown by:
AEROQUEST LIMITED
7235 Appleby Line,
Milton, Ont., CANADA L9T 2Y1
Tel: (905) 878-5616 Fax: (905) 876-0193

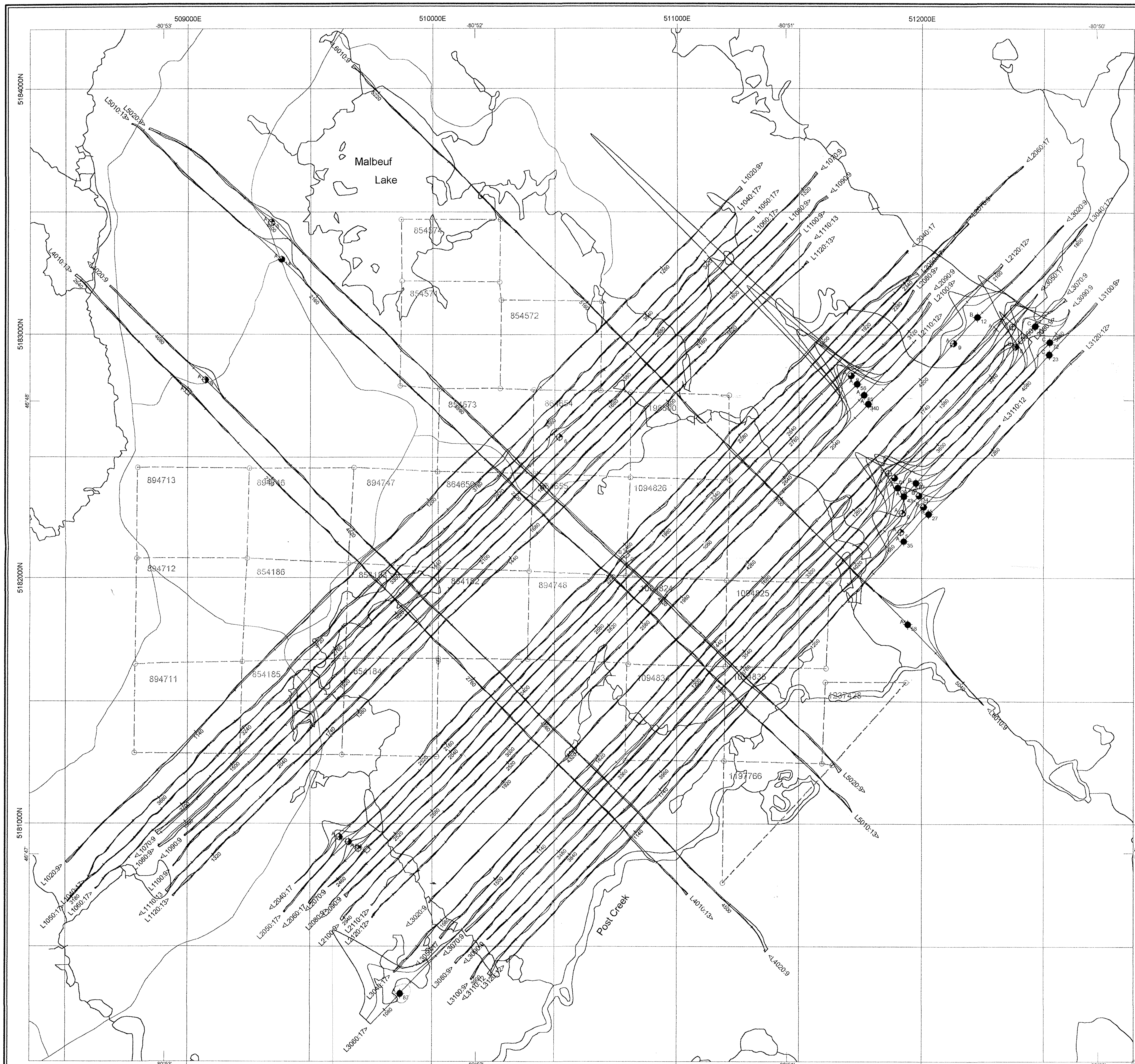
March, 2001

20103A-VGrad_10k/Rev 1.0

Plate 3

41I15SW2049 2.25613 PARKIN

240



Grid North
NAD27 - UTM Zone 17

Positive excursion to upper left

Z1 Channel, 1mm=5ppb
Z3 Channel, 1mm=5ppb

AEROTEM Anomaly Symbols:

6 Channel (positive, negative) ....
5 Channel (positive, negative) ....
4 Channel (positive, negative) ....
3 Channel (positive, negative) ....
2 Channel (positive, negative) ....
1 Channel (positive, negative) ....
Indeterminate (positive, negative) .
Power Line ....
High Voltage Line ....
Other Culture ....

Anomaly Letter A 35
Z3 Amplitude (ppb) or 1st negative channel

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- Traverse line direction: N45E & N135E
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- Aircraft: Eurocopter AStar-AS350/BA C-FHAK

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  - Configuration: Towed bird

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- Radar Altimeter: Terra TRA 3500/TRI-30

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  - Major Axis: 6378249.145
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- Local datum shift (x,y,z): 10,-158,-187

scale 1:10,000

200 0 200 400 600
metre

Namex Explorations Inc.
Sudbury Area, Ontario

AEROTEM PROFILES
Z1 & Z3 Channels

Post Creek Property

NTS 41I/15

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March, 2001

2.25613

Plate 4

20103A-EM1_10k/Rev 1.0